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S/139/60/000/005/007/031

E073/E135

Electric Conductivity and Optical Absorption of Thin Layers of the System Al—Te

concentrations of the initial materials is near to 2:3. In other sections the concentration of one or the other of the components predominates. At higher base temperatures the possibility of formation of Al_2Te_3 molecules exists also on adjacent sections and therefore the resistance will increase. It was found that structural changes will occur for a long time after the evaporation is terminated, and for that reason it is difficult to get reproducible results. The optical absorption of Al—Te layers of variable composition was studied by photoelectric methods, by means of a monochromator, on the same specimens as the electric properties. For determining stoichiometric composition of the Al_2Te_3 compound deposited on a glass base, the authors investigated the transparency T and the reflection R of the light from the layer. Both the transparency and the reflection were measured at 6000, 7600 and 9000 Å. It was found that the boundary of the main absorption for Al_2Te_3 compounds is at about 9000 Å, which corresponds to the width of the barred zone, Card 3/4

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S/139/60/000/005/007/031

E073/E135

Electric Conductivity and Optical Absorption of Thin Layers of
the System Al—Te

equalling 1.25-1.35 eV, and corresponds satisfactorily with the
value ΔE determined on the basis of the temperature dependence
of the specific electric conductivity.

There are 9 figures and 11 references: 9 Soviet, 1 German and
1 English.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet
(Kishinev State University)

SUBMITTED: September 29, 1959

Card 4/4

88053

9.4300 (and 1143, 1155)

S/139/60/000/006/020/032
E032/E414

AUTHOR Mushinskiy V P

TITLE Some Electrical and Optical Properties of In-Se Alloys of Variable Composition

PERIODICAL Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, No. 6, pp 130-134

TEXT The aim of the present work was to develop techniques of preparation of thin films of alloys having a variable composition along their length and to study their electrical conductivity and reflecting power. The In-Se alloys were obtained by evaporation onto a glass base, using the method described by Vekshinskiy (Ref. 6). The evaporation was carried out in a glass envelope at a residual pressure of not more than 10^{-5} mm Hg. Tungsten evaporators were set up at a distance of 8 cm from each other and 5 cm from the glass base on which the vapour was condensed. The temperature of the evaporators was determined from the melting points of various metals placed in contact with them. The glass targets were 90 x 18 x 1.5 mm in size. They were washed in chromic acid, concentrated nitric acid 1/6

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S/139/60/000/006/020/032
E032/E414

Some Electrical and Optical Properties of In-Se Alloys of Variable Composition

acid and then in alcohol and, finally, in distilled water. Each glass target was outgassed in a vacuum at a temperature of 300°C for 1 to 2 hours. It was then subjected to ion bombardment in a high-voltage discharge. The temperature of the glass target was controlled by a copper constantan thermocouple and the condensation of the vapour was carried out at various temperatures in the range 20 to 350°C. Pure indium and treble distilled selenium were used as the initial materials. Impurity concentrations were less than 0.01%. To begin with, indium and selenium deposits were produced separately in order to determine the distribution of the condensate over the target. From a knowledge of this distribution, it was possible to determine the conditions under which the simultaneous evaporation of indium and selenium should be carried out. These were chosen so that the required In-Se alloys were formed roughly in the middle of the target. The vapour was condensed on the glass target forming an alloy which, owing to the chosen geometrical conditions, had a

X

Card 2/6

88053

S/179/00/000/006/02417
8052/2414

Physical and Optical Properties of In-Se Alloys of
Various Composition

Continuous variation in the relative concentration of the two
components along the length of the deposit. This variation
was such that a large selenium concentration was produced at the
one end and a large indium concentration was produced at the
other. The percentage composition was determined with the aid
of the formula given by V. Ashurskiy (Ref. 6). It is known
that H. L. Vogel (Ref. 7) and M. Knansen (Ref. 8) that the
following compounds exist in the In-Se system: In_2Se_3 (25.6% Se),
 InSe (40.7% Se) and In_2Se_5 (50.79% Se). The measurements
were carried out as follows: Immediately after the
condensation and cooling down of the material on the targets
the reflecting power was measured at room temperature (in air).
Measurements showed that the reflection coefficient of the In-Se
system is not very dependent on the angle of incidence in the
range 0° to 40° . Further measurements were therefore
carried out at small angles of incidence. On completion of the
optical measurements, the condensate was divided into separate
and 3/6

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1/179/60/000/006/020/032
#032/F414

Electrical and Optical Properties of In-Se Alloys of Variable Composition

The thickness of the film and the resistivity of each band was measured as a function of temperature. A four-probe technique was employed. Fig 5 shows the reflectivity as a function of wavelength along the In-Se deposit (deposit obtained at 350°C). As can be seen, there are three distinct curves and it is suggested that these correspond to the first, second, and third bands. Measurements of the electrical resistivity of three bands of the deposit corresponding to the first, second, and third bands show that ρ is 100 ohm cm for the first band and 100 ohm cm for the second and third bands. However, the reflectivity coefficients of resistivity for the latter two bands are different. Fig 6 shows the variation of the conductivity with the temperature for the three bands. The activation energy determined from the slopes of these curves was found to be 1.1 eV and 1.2 eV respectively. It is concluded that the In-Se compounds of interest can be obtained provided the temperature of the glass target during the condensation process is 350°C. 6

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S/139/60/000/006/020/032
E032/E414

**Some Electrical and Optical Properties of In-Se Alloys of
Variable Composition**

is not less than 300°C. Below this temperature only a single compound is obtained. Acknowledgments are made to M.L.Kattsov, student of Kishinev State University, for his assistance. There are 6 figures and 12 references: 8 Soviet and 4 non-Soviet.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet
(Kishinev State University)

SUBMITTED: June 29, 1959

Card 5/6

88053

S/139/60/000/006/020/032
E032/E414

Some Electrical and Optical Properties of In-Se Alloys of Variable Composition

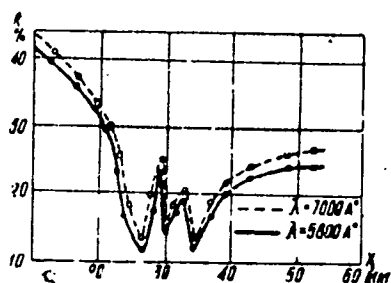


Рис. 5.

Fig. 5.

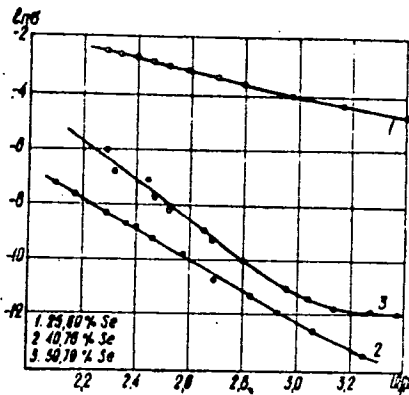


Рис. 6.

Fig. 6.

Card 6/6

MUSHINSKIY, V.P.

Optical properties of thin films of In_2Se_3 ; Izv. vys.
ucheb. zav.; fiz. no.5:29-33 '62. (MIRA 15:12)

1. Kishinevskiy gosudarstvennyy universitet.
(Indium selenide—Optical properties)

Some properties of films of the system gallium-tellurium. V. I.
Gramatskiy, V. P. Mushinskiy (10 minutes).

Report presented at the 3rd National Conference on Semiconductor Compounds,
Kishinev, 16-21 Sept 1963

L 12650-65 EWT(1)/EWT(k)/EWT(m)/T/EEC(t)/EEC(b)-2/EMP(b) Pz-6 IJP(c)/AFWL/
ASD(a)-5/SSD/AS(mp)-2/ESD(t) RDW/JD/GG/AT/MLK

ACCESSION NR: AT4044565

S/0000/64/000/000/0112/0122

AUTHOR: Gramatskiy, V.I., Mushinskiy, V.P.

TITLE: Photoelectric and optical properties of thin GaTe layers

SOURCE: AN MolSSR. Institut fiziki i matematiki. Issledovaniya po poluprovodnikam; novy*ye poluprovodnikov*ye materialy* (Semiconductor research; new semiconductor materials). Kishinev, Gos. Izd-vo Kartya Moldovenyaske, 1964, 112-122

TOPIC TAGS: semiconductor, gallium telluride, photoelectric property, optical property

ABSTRACT: The authors present the results of a study of the optical and photoelectric properties of thin GaTe layers, undertaken to collect more information on the compound as a semiconductor material. A UM-2 monochromatic spectrograph, an FESS-UZ photo-cell and a mirror galvanometer were used to determine the stationary photoconductivity, and the spectral characteristics of light refraction and absorption in well-burned, 0.3-2.0 μ thick, GaTe layers as functions of temperature (20, 70 and 183C and 100 ~ 400K) and layer thickness. The coefficient of refraction was found to be approximately 2.7 and to increase with a decrease in temperature. The spectral characteristics of the photocurrent showed a maximum at $\lambda = 730 \text{ m}\mu$ which tended to move toward the higher wave-

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L 12650-65

ACCESSION NR: AT4044565

lengths as the temperature increased, the trap level depth was approximately 0.01 ev, the width of the forbidden zone was 1.45 ev, and the maximum of stationary photoconductivity was established at -70 — -80. Orig. art. has: 10 figures and 5 formulas.

ASSOCIATION: Institut fiziki i matematiki AN Mol SSR (Institute of Physics and Mathematics, AN Mol. SSR)

SUBMITTED: 13Dec63

ENCL: 00

SUB CODE: EC, OP

NO REF SOV: 005

OTHER: 003

Card 2/2

MUSHINSKIY, V.P.; GRAMATSKIY, V.I.; MANUSHEVICH, G.N.

Optical and photoelectric properties of thin Ga_2Te_3 films.
Izv.vys.ucheb.zav.; fiz. no.3:172-178 '63. (MIRA 16:12)

1. Kishenevskiy gosudarstvennyy universitet.

GRAMATSKIY, V.I.; MUSHINSKIY, V.P.

Some electric properties of thin layers of the Ga - Te
system. Uch.zap.Kish.un. 69:38-40 '64.

(MIRA 18:12)

MUSHINSKIY, V.P.; MUSHINSKAYA, K.M.; GRAMATSKIY, V.I.

Optical absorption in thin films of the system $\text{GaTe} - \text{Ga}_2\text{Se}_3$.
Uch. zap. Kish. un. 75:35-38 '64. ² (MIRA 18:14)

GRAMATSKIY, V.I.; MUSHINSKIY, V.P.

Some electric and photoelectric properties of single crystals
of the system Ga - Te. Izv. AN SSSR. Ser. fiz. 28 no.6.1077-
1079 Je '64. (MIRA 17:7)

L 23812-66 EWT(m)/ETC(f)/EWG(m)/EWP(t) IJP(c) RDW/JD/JG

ACC NR: AR6005204

SOURCE CODE: UR/0058/65/000/009/DO74/DO74

AUTHORS: Mushinskiy, V. P.; Mushinskaya, K. M.; Gramatskiy, V. I.

TITLE: Optical absorption in thin layers of the system Ga_2Te_3 -- Ga_2Se_3 7D
 Ga_2Se_3 71 16 3

SOURCE: Ref. zh. Fizika, Abs. 9D592

REF. SOURCE: Uch. zap. Kishinevsk. un-t, v. 75, 1964, 35-38

TOPIC TAGS: light absorption, gallium optic material, selenide, telluride, absorption spectrum, optic coating, absorption edge, activation energy

TRANSLATION: An investigation was made of the properties of several alloys of the Ga_2Te_3 -- Ga_2Se_3 system. Absorption spectra of thin layers of alloys of this system, obtained by the method of evaporating sintered bulk crystals in high vacuum, are presented. The substrate temperature was taken to be sufficiently high to obtain a layer with

Card

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L 23812-66

ACC NR: AR6005204

crystalline structure. To obtain reproducible results, the layers were subjected to prolonged annealing in vacuum at temperatures which differed with the composition. The values of the photon energy ΔE_c , corresponding to the absorption edges, were calculated. The obtained dependence of the optical activation energy on the composition of the thin layers of the Ga_2Te_3 -- Ga_2Se_3 system indicates that the layers, in all probability, are solid solutions of the corresponding compositions. Bibliography, 12 titles. L. Trofimova.

SUB CODE: 20

Card

2/2

L 27082-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AT6005622

SOURCE CODE: UR/2837/64/069/000/0038/0040

AUTHOR: Gramatskiy, V.I.; Kishinskiy, V.P.

ORG: none

TITLE: Some electrical properties of thin films of the system Ga-Te

SOURCE: Kishinev. Universitet, Uchenyye zapiski, v. 69, 1964, 38-40

TOPIC TAGS: semiconducting film, gallium compound, electric conductivity, metal film, thermoelectric power, tellurium compound, temperature dependence, electric property

ABSTRACT: This paper is a study of the electrical conductivity and thermoelectric power of thin, vapor-deposited films of GaTe and Ga_2Te_3 . Thin films of the Ga-Te system were obtained by the evaporation of massive polycrystalline and monocrystalline specimens of GaTe and Ga_2Te_3 in a vacuum of the order of 10^{-5} mm. Hg, and also by the Vekshinsky method. The substrates were glass and mica, at controlled temperatures. The physical properties of the films were found to depend upon many factors, such as the velocity of sublimation, temperature of the substrate, et c. However, the substrate material did not significantly affect the film electrical properties. To exclude anomalies related to excessively thin films, films at least $.2\mu$ thick were used. Measurements of electrical conductivity and differential thermoelectric power were made under vacuum. Curves of temperature dependence of the electrical conductivity of thin

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L 27082-66

ACC NR: AT6005622

films of GaTe and Ga₂Te₃ are given for a temperature range of -183°C to + 300°C, obtained both in vacuum and in air. The forbidden zone width of Ga₂Te₃, determined from the slope of the logarithm of the conductivity curve plotted vs. the inverse temperature, was 1.56 electron volts, in agreement with known optically determined data. The differential thermoelectric power (relative to copper) of thin films showed little temperature dependence; it was of the order of 450 microvolts/degree C. for GaTe, and 500 microvolts/degree C. for Ga₂Te₃. Orig. art. has: 3 figures.

SUB CODE: 11

SUBM DATE: 00

ORIG REF: 014

OTH REF: 00

Card 2/2 K/

L 7910-66 EWT(m)/ETC/EG(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) RDW/JD/JG

ACC NR: AP5025780

SOURCE CODE: UR/0363/65/001/009/1468/1475

AUTHOR: Mushinskiy, V. P. ; Mushinskaya, K. M.

ORG: Kishinevskiy State University (Kishinevskiy gosudarstvennyy universitet)

TITLE: Substitution solid solutions in the system Ga_2Te_3 -- Ga_2Se_3

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 9, 1965, 1468-1475

TOPIC TAGS: telluride, gallium compound, physical chemistry properties, single crystal, solid solution, electric conductivity

ABSTRACT: The article presents the results of an x-ray and microstructural analysis of Ga_2Te_3 -- Ga_2Se_3 . The microhardness and the electric and optic properties of the solid solutions were studied to establish a correlation between the changes in the composition and the lattice constant, on the one hand, and the physical properties on the other hand. The following nine compositions were synthesized for study: Ga_2Te_3 , $7\text{Ga}_2\text{Te}_3 \cdot \text{Ga}_2\text{Se}_3$, $3\text{Ga}_2\text{Te}_3 \cdot \text{Ga}_2\text{Se}_3$, $1.5\text{Ga}_2\text{Te}_3$.

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UDC:541.123.5

L 7910-66

ACC NR: AP5025780

8

Ga_2Se_3 , Ga_2Te_3 , Ga_2Se_3 , Ga_2Te_3 , $1.5\text{Ga}_2\text{Se}_3$, Ga_2Te_3 , $3\text{Ga}_2\text{Se}_3$, Ga_2Te_3 , $7\text{Ga}_2\text{Se}_3$, Ga_2Se_3 . Results of x-ray analysis confirm the formation of a continuous series of solid solutions with the structure of zinc blende, within the limits of 100 to 40 mole % Ga_2Te_3 . The whole series of Ga_2Te_3 -- Ga_2Se_3 alloys exhibit semiconducting properties. At temperatures greater than 200C, the conductivity of alloys of the Ga_2Te_3 -- Ga_2Se_3 system varies smoothly with a change in composition. The breadth of the forbidden band, calculated from the slope of the straight section of the curve in $\sigma=f(10^3/T)$, varies smoothly with a change in composition of the samples, from 1.5 ev for Ga_2Te_3 to 2.05 ev for Ga_2Se_3 . The maxima on the reflection curves for single crystals of $7\text{Ga}_2\text{Te}_3$, Ga_2Se_3 and $3\text{Ga}_2\text{Te}_3$, Ga_2Se_3 , with respect to the reflection maximum of the compound Ga_2Te_3 , are shifted toward the side of shorter wave lengths; this is evidently connected with maintenance of the symmetry of the optical transitions during a change in the composition of the crystals from 100 to 75 mole % Ga_2Te_3 . The article describes a technique for obtaining thin layers of alloys of the Ga_2Te_3 -- Ga_2Se_3 system. A study was made of the absorption spectrum of thin layers of these alloys, and a determination was made of the optical breadth of the forbidden zone ΔE_{opt} ; the

Card 2/3

L 7910-66

ACC NR: AP5025780

value agrees well with the value of ΔE determined from the temperature dependence of the electrical conductivity. "The authors express their thanks to T. I. Lang for measurement of the microhardness." Orig. art. has: 7 figures and 1 table

SUB CODE: IC/ SUBM DATE: 20Apr65/ ORIG REF: 003/ OTH REF: 002

CC
Card 3/3

L 33753-66 EWT(m)/EWP(t)/ETI IJP(c) RDW/JD/JG

ACC NR: AR6016779

SOURCE CODE: UR/0081/65/000/023/B073/B073

AUTHOR: Mushinskiy, V. P.; Mushinskaya, K. M.; Gramatskiy, V. I.

TITLE: Optical absorption in thin layers of the $Ga_2Te_3-Ga_2Se_3$ system

SOURCE: Ref. zh. Khimiya, Abs. 23B532

REF SOURCE: Uch. zap. Kishinevsk. un-t, v. 75, 1964, 35-38

TOPIC TAGS: germanium, germanium based alloy, tellurium containing alloy, selenium containing alloy, absorption spectrum

ABSTRACT: Absorption spectra of thin alloy layers of the $Ga_2Te_3-Ga_2Se_3$ system obtained by evaporation in vacuum of large fused crystals were studied. Condensed layers of over 3μ thick were calcinated in vacuum. The energy of E_c photons corresponding to the boundary of absorption were calculated. ΔE_c changes lineary with the composition change from 0 to 75 mol% of Ga_2Se_3 . The relationship obtained between the activation energy and the composition indicates that the layers are solid solutions. L. Trofimova.

SUB CODE: 11, 20/ SUBM DATE: none

Card 1/1 B1G

L 14041-65 EWT(1)/EWT(m)/T/EEC(b)-2/EWP(b) IJP(c)/AFWL/BSO/AS(mp)-2/
ESD(gs)/ESD(t) RDW

ACCESSION NR: AP4048436

S/0181/64/006/011/3478/3479

AUTHORS: Gramatskiy, V. I.; Mushinskiy, V. P.

TITLE: Optical properties of single crystals of Ga_2Te_3 B

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3478-3479

TOPIC TAGS: gallium compound, single crystal, optical absorption, temperature dependence, forbidden band

ABSTRACT: Continuing earlier studies of Ga_2Te_3 (Izv. vuzov SSSR, Fizika, No. 3, 173, 1963); (Uch zap. KGU v. 49, 119, 1961), the authors measured the optical absorption of large samples (40--100 μ thick) of this compound cleaved from a large single crystal. The measurements were made at various temperatures with the aid of an UM-2 monochromator and an IKS-14 spectrophotometer. The long-wave edge of the principal absorption band was found to shift toward longer wavelengths with increase in temperature. The width of the

Card 1/2

L 11811-65

ACCESSION NR: AP4048436

forbidden band, calculated from the shift of this edge, was found to vary linearly with the temperature, with a temperature coefficient -4×10^{-4} eV/deg. The present results agree well with the data obtained earlier for thin layers of this compound. Orig. art. has: 2 figures.

ASSOCIATION: Kishinevskiy gosudarstvennyy universitet (Kishinev State University)

SUBMITTED: 18Jun64

ENCL: 00

SUB CODE: SS, OP

NR REF SOV: 003

OTHER: 000

Card 2/2

ACC NR: AR7000874

SOURCE CODE: UR/0058/66/000/009/E077/E078

AUTHOR: Mushinskiy, V. P. ; Gramatskiy, V. I.

TITLE: Summary of the investigation of optical and photoelectric properties of some A^{III}--B^{VI} type systems

SOURCE: Ref. zh. Fizika, Abs. 9E630

REF SOURCE: Uch. zap. Kishinevsk. un-t, v. 80, 1965, 99-102

TOPIC TAGS: optic property, photoelectric property, crystal lattice parameter, aluminum selenide, indium selenide, gallium telluride

ABSTRACT: A brief description is presented of the main results of an investigation of A^{III}--B^{VI} systems usually producing A₂^{III}B₃^{VI} compounds most of which crystallize with the formation of zinc blende type lattice. An analysis was made of the electrical, galvanomagnetic, thermoelectric and particularly optical and photoelectric properties of such systems as Al--Se, In--Se, Ga--Te and the corresponding Al₂Se₃, In₂Se₃, Ga₂Te₃ and GaTe compounds. The main parameters of these compounds were determined. Considerable emphasis was placed on the

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ACC NR: AR7000874

study of solid solutions based on binary compounds $A_2^{III}B_3^{VI}$: such as
 $Ga_2Te_3-Ga_2Se_3$, $Ga_2Te_3-In_2Te_3$, $Ga_2Te_3-Ga_2S_3$ and others. F. Nad'.
[Translation of abstract]

[AM]

SUB CODE: 20/

Card 2/2

ACCESSION NR: AP4041381

AUTHOR: Gramatskiy, V.I.; Mushinskiy, V.P.

TITLE: Some electric and photoelectric properties of Ga-Te system single crystals
Report, Third Conference on Semiconductor Compounds held in Kishinev 16-21 Sep 1963

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 1077-1079

TOPIC TAGS: semiconductor, electric conductivity, Hall effect, photoconductivity, thermal emf, gallium compound, tellurium compound.

ABSTRACT: Despite its title, this paper is concerned only with the two compounds, GaTe and Ga₂Te₃, single crystals of which were investigated. Ga₂Te₃ was found to have the ZnS type structure and GaTe to have a monoclinic lattice. The conductivity and thermal emf were measured over the temperature range from -183 to 350°C. Higher temperatures could not be employed because the specimens began to decompose. The Hall coefficient was measured from -183 to 20°C. The photoconductivity spectral distribution was determined at room temperature. The results are presented graphically. The temperature dependence of the measured quantities was very similar for the two materials, but the conductivities and Hall coefficients differed consider-

Card 1/2

ACCESSION NR: AP4041381

ably in magnitude. GaTe had the larger conductivity and the smaller Hall coefficient by factors 10^6 and 10^3 , respectively. Conductivity measurements were performed both in evacuated glass tubes and in air. The results differed greatly in the impurity conduction region but came into agreement when intrinsic conduction set in at 200°C . The thermal emf was almost independent of temperature below 200°C (approximately one millivolt per degree for both materials), and decreased rapidly with increasing temperature at higher temperatures. The Hall coefficient and the carrier mobility decreased and the carrier concentration increased with increasing temperature over the range investigated; which lay entirely within the impurity conduction region. The energy gap was 1.66 eV for GaTe and 1.56 eV for Ga_2Te_3 . The maximum photoconductivity of GaTe and Ga_2Te_3 occurred at 710 and 760 millimicrons, respectively; these figures are in agreement with those found for polycrystalline materials by N.A. Goryunova et al (Zh. Tekhn. fis. 25, 10, 1955). Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: SS, IC

NR REF SOV: 002

ENCL: 00

OTHER: 000

Card 2/2

MUSHINSKIY, Ya. Ya., professor

Black fungus of birch. Priroda 44 no.8:110-111 Ag '55. (MLR 8:10)

1. Meditsinskaya akademiya v Lodzi
(Birch--Diseases and pests) (Fungi, Pathogenic)

Mushinskiy, Ya Ya

L-8

USSR/Cultivated Plants - Medicinal and Essential-Oil
Bearing, Poisonous.

Abs Jour : Ref Zhur - Biologiya, No 16, 25 Aug 1957, 69437

Author : Mushinskiy, Ya.Ya.

Inst :

Title : Clubmoss Alkaloids.

Orig Pub : Aptech. delo, 1956, 5, No 4, 22-25

Abst : The presence of alkaloids (A) has been established for all European and most North American species of Lycopodium plant. A are found only in vegetative plant organs; the spores do not contain them. Clubmoss A are highly variable, but none of their structural forms have been established. From Lycopodium selago and L. innudatum a flavone quercetin glucoside was isolated. The pharmacological studies proved the high toxicity of selagin. Selagin depresses the intraocular pressure and causes a narrowing of the pupil; it therefore may serve as a

Card 1/2

MESHMAN, M.D.; MUSHINSKIY, Ye.D.; TIKHOMIROVA, N.I.

Treatment of trichocephaliasis by diathermy. Med.paraz. i paraz.
bol. 27 no.1:111 Ja-V '58. (MIRA 11:4)

1. Iz parazitologicheskogo otdela Simferopol'skoy gorodskoy sanitarno-
epidemiologicheskoy stantsii.
(NEMATODA) (DIATHERMY)

MUSHITS, N. P.

Dissertation: "Real Primitive Lie Groups." Cand Phys-Math Sci, Kazan' State U, Kazan', 1954. (Referativnyy Zhurnal--Matematika, Moscow, Aug 54)

SO: SUM 393, 28 Feb 1955

MUSHIY, R. YA.

PAMFILOV, A.V.; MUSHIY, R.Ya.

Effect of the acidity of the initial solution on the photostability of lead chromate. Zhur.prikl.khim. 30 no.4:636-639 Ap '57.

(MIRA 10:7)

1. Laboratoriya fizicheskoy khimii Chernovitskogo universiteta.
(Lead chromate)

1 33303-65 ENT(n)/EFF(s)/EPR/ENP(j)/EMA(s) Ps-4/Pr-3/Ps-4 RPL H/

ACCESSION NR: AP5005158

S/0064/65/000/002/0057/0059

AUTHORS: Moshkovich, F. B.; Mushiy, R. Ya.; Kostyuk, V. P.

35

TITLE: Investigation of the flegmatization by inert diluents of the explosive decomposition of diacetylene

SOURCE: Khimicheskaya promyshlennost', no. 2, 1965, 57-59

TOPIC TAGS: explosive decomposition, propane, butane, hexane, methanol, benzene, argon, helium, ignition, heat capacity, thermal conductivity/ Kht 2M gas chromatographer

ABSTRACT: Pure diacetylene and its mixtures containing 0 to 40 vol % of propane, butane, hexane, methanol, benzene, vinylacetylene, methylacetylene, argon, and helium were prepared and purified by the usual methods. After analysis on a Kht-2M gas chromatograph they were ignited by sparks from a Rumkorf coil at various pressures up to 700 mm Hg. Explosions (or their absence) were recorded as shown in Fig. 1 on the Enclosure. It was found that explosive decomposition of diacetylene may be prevented by various diluents. The flegmatizing effect of the diluents increases with their heat capacity. The high thermal conductivity of

Card 1/3

L 33303-65

ACCESSION NR: AP5005158

helium as compared to argon of the same heat capacity results in higher flegmatiza-
tion. Orig. art. has: 10 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 01

SUB CODE: CC, CC

NO REF SOV: 000

OTHER: 000

Card 2/3

L 33303-55
ACCESSION NR: AP5005158

ENCLOSURE: 01

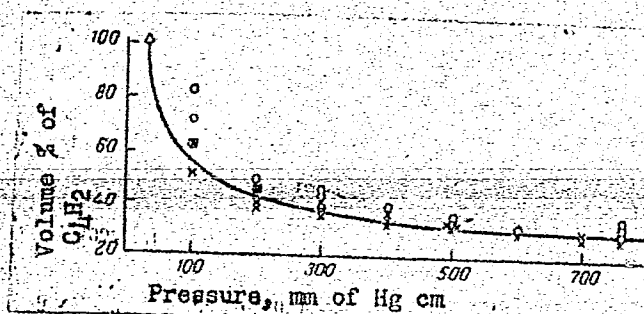


Fig. 1. Limits of explosive decomposition of diacetylene-helium mixtures

Card 3/3

MUSHIY, R.Ya.; PAMFILOV, A.V.

Photoreduction of methylene blue on titanium dioxide. Ukr. khim.
zhur. 24 no.4:462-466 '58. (MIRA 11:10)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Photochemistry) (Methylene blue)

PAMETILOV, A.V.; MUSHIY, R.Ya.; MAZURKEVICH, Ya.S.

Photocatalytic activity of zinc oxide. Ukr.khim.zhur. 24 no.5:599-601
' 58. (MIRA 12:1)

1. Chernovitskiy universitet, laboratoriya fizicheskoy khimii.
(Zinc oxide) (Catalysts)

MUSHIY, R. Ya. Cand Chem Sci -- (diss) " Study of the photosensitizing capacity of zinc oxide and titanium dioxide." Chernovtsy, 1969. 17 pp (Min of Higher and Secondary [REDACTED] Specialized Education UkSSR. Chernovtsy State Univ), 150 copies (KL, 45-59, 143)

S/073/62/028/005/003/005
1003/1203

AUTHORS: Pamfilov, A.V., Mushiy, R.Ya., and Mazurkevich Ya.S.

TITLE: The photocatalytic activity of anatase and of rutile

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, v. 28, no 5, 1962, 589-594

TEXT: There are indications in the literature that the crystal structure of titanium dioxide is the factor which determines its activity as an accelerator in the process of decomposition of organic coatings. It was found that the photoelectric activity of rutile prepared by the hydrolysis of titanium tetrachloride is considerably higher than that of rutile obtained by heating anatase at high temperatures. The activity of rutile obtained by the hydrolysis of $TiCl_4$ is almost the same as that of anatase obtained by precipitation with ammonia from a solution of $TiCl_4$. Very small admixtures of heavy metals increase the activity of TiO_2 but large amounts (above 0.1%) decrease it. There is a strict relationship between the photocatalytic activity of TiO_2 and ZnO and their electric and photoelectric properties. There are 2 figures and 4 tables.

Card 1/2

The photocatalytic...

S/073/62/028/005/003/005
I003/I203

ASSOCIATION: Chernovitskiy gosudarstvennyy universitet (Czernowitz State University)

SUBMITTED: February 21, 1961

Card 2/2

S/064/63/000/002/003/005
B117/B186

AUTHORS: Mushiy, R. Ya., Moshkovich, F. B., Pechenezhskaya, V. N.,
Popova, V. P., Mogilevskaya, L. N.

TITLE: Explosive decomposition of diacetylene and its mixtures

PERIODICAL: Khimicheskaya promyshlennost', no. 2, 1963, 29 - 31

TEXT: Diacetylene obtained from dichlorobutyne by a method described earlier (Ukr. khim. zh. (in press)) was used to study the explosiveness of pure diacetylene and its mixtures with other gases. The experiments were made in a glass device (B. B. Brandt, L. A. Matov, A. I. Rozlovskiy, V. S. Khaylov, Khim. prom. no. 5, 419 (1960)) at 20 - 25°C and 1 at. Ignition was made either with an electric spark or by burning through a nichrome wire. It was found that diacetylene purified chromatographically explodes at a lower pressure than doubly distilled diacetylene which apparently contains chlorine derivatives. The critical pressure for the explosive decomposition of pure diacetylene is 30 - 33 mm Hg, irrespective of the type of initiation. Studies of a diacetylene mixture with acetylene showed that an increase of the total pressure is of little effect and may even decrease the critical diacetylene content due to the simultaneous

Card 1/2

Explosive decomposition of...

S/064/63/000/002/003/005
B117/B186

decomposition of acetylene. Limits of the diacetylene content in other gas mixtures at a total pressure of 700 mm Hg are (in % by volume): for nitrogen 22% with nichrom wire ignition and 25% with electric-spark ignition and for hydrogen and carbon oxide 30%; for ammonia 37%; for carbon dioxide 35%, and for natural gas 39% which among the gases studied has the highest stabilizing effect. The lowest critical diacetylene content was found in the mixture with acetylene. At 700 mm Hg it was 16.5 - 17 % by volume. When the total pressure was further increased the critical diacetylene content became lower in contrast to other mixtures where it remained almost constant beginning from 500 to 600 mm Hg. The small stabilizing effect of acetylene and the decrease of the critical diacetylene content with increased pressure, apparently is related to the decomposition of acetylene initiated by the decomposition of diacetylene. There are 7 figures.

Card 2/2

MUSHIY, R.Ya.; MOSHKOVICH, F.B.; PECHENEZHSKAYA, V.N.; POPOVA, V.P.;
MOGILEVSKAYA, L.N.

Explosive decomposition of diacetylene and its mixtures. Khim.
prom. no.2:109-111 F '63. (MIRA 16:7)

(Butadiyne) (Explosions)

BONDAR', A.M.; MUSHIY, R. Ya.; KOSTYUK, V.N.; MOSHKOVICH, F.E.

Studying the conditions of the explosive decomposition of allene.
Khim. prom. 41 no. 12:923-924 D '65. (MIRA 19:1)

KIPRIANOV, A. I.; MUSHKALO, I. L.

Polybenzothiasolyls. Zhur. ob. khim. 32 no. 12:4040-4047
D '62. (MIRA 16:1)

1. Institut organicheskoy khimii AN Ukrainskoy SSR.

(Benzothiasole) (Polymerization)

Y. I. ZIL'BERMAN, A. I. ZIL'BERMAN, N. I. ZIL'BERMAN, etc.

Cyanine dyes with two conjugate chromophores, part 1.
org. khim. 1 no. 4: 744-750 Ap '65.

Cyanine dyes with two conjugate chromophores, part 2.
ibid. 1965, 255 (406-18)

1. Institut organicheskoy khimii AN UkrSSR.

MUSHKALO L.K.

Condensation of acetylenedicarboxylic acid with *o*-amino-phenyl mercaptans. L. L. Mushkalo and V. A. Beremina (Kiev State Univ. *Zhur.* 18, 103-7 (1952) in Russian); cf. *ibid.* 17, 751 (1951).—Condensation of *o*-aminophenyl mercaptans with (i) CCO_2H (I) and its di-Me ester (II) was examd. with the following results. Mixing Et_2O solns. of 4.60 g. I and of 8 g. *o*- $\text{H}_2\text{NC}_6\text{H}_4\text{SH}$ resulted in an exothermic reaction which rapidly yielded 98% 3-*oxo*-2-(carboxymethylene)-3,4-dihydro-2H-1,4-benzothiazine

ester, m. 144° (from Me_2CO), also in 91% yield by similar condensation of II. Hydrogenation of the acid as above gave 51% 4-Me deriv. of IV, m. 140° (from EtOH), an

authentic specimen of which resulted in 58% yield on heating 0.42 g. maleic acid with 0.5 g. *o*- $\text{MeNHC}_6\text{H}_4\text{SH}$ 16 min. on steam bath.
G. M. Kosolapoff

(III) (*o*- $\text{C}_6\text{H}_4\text{NH}_2\text{CO}_2\text{C}(\text{CH}_3)_2$) S. yellow, decomp. 278° (from BuOH); this converted to Ag salt by evapn. with NH_4OH , followed by treatment with AgNO_3 , gave on heating with MeI 61% Me ester, decomp. 264° (from Me_2CO). A similar reaction of II gave 96% of the same Me ester, m. 264° (decompn.). Hydrogenation of III over Raney Ni in NaOH soln. gave 70% 3-*oxodihydrobenzothiazine*-2-acetic acid (IV), m. 196°. Mixing Et_2O solns. of I and *o*- $\text{MeNHC}_6\text{H}_4\text{SH}$ similarly gave 81% 4-Me deriv. of III, yellow, decomp. 245° (from EtOH), whose Ag salt with MeI gave the Me

MUSHKALO, L.K.

Condensation of O-aminothiophenols with unsaturated ketones and β -haloketones. Ukr.khim.shur. 19 no.2:193-200 '53. (MLRA 7:4)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenko, kafedra organicheskoy khimii.

(Thiophenol) (Ketones) (Condensation products (Chemistry))

KIPRIANOV, A.I.; BABICHEV, F.S.; MUSHKALO, L.K.; POCHINOK, V.Ya.; PEL'KIS, P.S.

[Outline history of organic chemistry at Kiev University] Ocherki po istorii organicheskoi khimii v Kievskom universitete. Pod red. A.I. Kiprianova. [Kiev] Izd-vo Kievskogo gos. univ. im. T.G.Shevchenko, 1954. 130 p.

(MLRA 9:8)

(Chemistry, Organic)

(Kiev University)

MUSHKALO, L.K.; FEDOROVA, I.P.

Synthesis of tetrahydrobenzhepta-1,5-thiazine. Ukr.khim.zhur.
20 no.3:305-307 '54. (MLRA 7:8)

1. Kiyevskiy gosudarstvennyy universitet im. T.G.Shevchenka.
(Thiazine)

MUSHKALO, L.K.; LANOVA, Z.I.

Condensation of unsaturated carbonyl compounds and β -halo ketones
with β -aminoethylmercaptans. Ukr.khim.zhur. 21 no.5:631-635 '55.
(MLRA 9:3)

1. Kiyevskiy gosudarstvennyy universitet imeni T.G. Shevchenko,
Kafedra organicheskoy khimii.
(Carbonyl compounds) (Ketones) (Thiols)

Mushkalo, L.K.
USSR/ Chemistry - Organic chemistry
Card 1/1 Pub. 116 - 10/29
Authors : Mushkalo, L. K., and Yangol', G. Ya.
Title : Condensation of thiomides of carboxylic acids with acetylene carboxylic acids
Periodical : Ukr. khim. zhur. 21/6, 732-737, Dec 1955
Abstract : The results obtained during the condensation of thiomides of carbonic, acetic, benzoic and phenylacetic acids with acetylene carboxylic acids are analyzed. It was found that acetylene carboxylic acids condense with thioamides in exactly the same manner as maleic and fumaric acids leading to the formation of thiazoline and thiazolidine derivatives. The characteristics of 10 new compounds obtained from the reaction of thiourea, phenylthiourea, symmetrical and nonsymmetrical diphenylthiourea with thioamide of acetic, phenylacetic acids and thiobenzamide, are described. Three references: 1 USSR, 1 USA and 1 Germ. (1895-1953).
Institution : Kiev State University im. T. G. Shevchenko, Faculty of Organ. Chem.
Submitted : April 18, 1955

MUSHKALO. L. K.

MUSHKALO, L.K.: "The condensation of unsaturated carboxylic compounds with 1,2-aminomercaptans, 1,2-diamines, and thioamides of carboxylic acids." Min Higher Education Ukrainian SSR. Kiev State University imeni T. G. Shevchenko. Kiev, 1956 (DISSERTATION For the Degree of Doctor in Chemical Sciences)

So: Knizhnaia letopis', No 24, 1956

Name: MUSHKALO, Luka Korneyevich

Dissertation: Condensation of unaltered carbonyl compounds with 1.2-amino-mercaptans, 1.2 diamines and triamines of carbonaceous acids

Degree: Doc Chem Sci

Affiliation: /not indicated/

Defense Date, Place: 15 Oct 56, Council of Kiev State U
imeni Shevchenko

Certification Date: 6 Jul 57

Source: BMVO 18/57

MUSHKALO, L. E.

Letter to the editor. Zhur.ob.khim. 26 no.6:1809-1809 Je '56.

(MIRA 11:1)

1.Kiyevskiy gosudarstvennyy universitet.
(Thiazole)

MUSHKALO, L.K.

Condensation of aromatic o-diamines with unsaturated ketones.

Nauk.sop.Kyiv.un. 16 no.15:133-145 '57. (MIRA 11:11)

(Amines) (Ketones) (Condensation products (Chemistry))

MUSHKALO, L.K.

Condensation of o-aminophenylmercaptans with allyl bromide. Ukr.
khim. zhur. 23 no.5:642-645 '57. (MLRA 10:11)

1. Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko, kafedra
organicheskoy khimii.

(Condensation products (Chemistry)) (Thiols) (Propene)

AUTHOR: Mushkalo, L.

79-11-56/56

TITLE: Letter to the Editor (Pis'mo v redaktsiyu).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 11,
pp. 3176-3176 (USSR)

ABSTRACT: In their answer to the author's letter in this periodical B. M. Mikhaylov and I. K. Platov admit that they did not know the paper on the synthesis of aminothiazoles. They, however, doubted the existence of 4-methyl-2-dimethyl-aminoethylthiazole synthesized by him by pointing out the deviations of the melting points of the picrates and iodomethylates of this base as well as the absence of an analysis. The author answered that he synthesized the amines of thiazole, benzthiazole and α -naphthothiazole according to Mannich. Mikhaylov's remark that Mannich's reaction with 2,4-dimethylazole only takes place in the presence of hydrochloric acid and that they only under these conditions succeeded in obtaining the corresponding azoles seems peculiar to the author. The picrate of 4-methyl-2-dimethylaminoethylazole of the melting point 157-168°C produced by him proved to be a dipicrate of the formula $C_{20}H_{20}N_8S_4$. The author gives the data of analysis of this

Card 1/2

MUSHKALO, L. K.

AUTHOR: Mushkalo, L. K.

79-2-52/04

TITLE: Condensation of o - Amino thiophenols With Unsaturated Ketones and β - Ketone Halides. II. (Kondensatsiya o - aminotiofenolov s nenasyshchennymi ketonami i β - galoidketonami. II.).

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 2, pp. 507-512 (USSR).

ABSTRACT: As has been communicated already derivatives of the dihydrobenzohepta-1,5 - thiazine are formed on the occasion of the condensation of o - amino thiophenols with mesityl oxide and also with methyl- β -bromoiso-butylketone. New heptathiazine syntheses are described and some observations are mentioned, e. g.: The condensation of amino thiols takes place easiest with mesityl oxide; the nitro group in position 5 of the amino thiophenol renders difficult the condensation reaction; the yield of the heptathiazines increases if β - ketone halides instead of unsaturated ketones are used for condensation with amino thiols (nitroamino thiophenol condensations); in the case of N-substituted o - amino thiophenols condensation also occurs easiest with mesityl oxide; the nature of the radical at the nitrogen atom of the amino thiol considerably influences the yield of condensation products. Quarternary, glassy salts melting in the air are obtained which are favourable for the production of cyanine dyes. The new derivatives

Card 1/2

Condensation of α - Amino thiophenols With Unsaturated Ketones 72-252/64
and β - Ketone Halides. II.

of dihydrobenzohepta-1,5-thiazine obtained are: 2,4-dimethyl-2,2,4-trimethyl-8-nitro-, 2,4-dimethyl-8-nitro-, 2,4,5-trimethyl-, 2,4-dimethyl-5-ethyl-, 4,5-dimethyl-, 4-methyl-5-ethyl- and 4-methyl-5-phenyl-dihydrobenzohepta-1,5-thiazine as well as one amine, the 2,2,4-trimethyl-8-aminodihydrobenzohepta-1,5-thiazine. The quaternary salts of dihydrobenzohepta-1,5-thiazine are: methyl perchlorate 2,4-dimethyl-, ethylperchlorate 2,4-dimethyl-, methylperchlorate 4-methyl-, ethylperchlorate 4-methyl-, and phenylperchlorate of the 4-methyldihydrobenzohepta-1,5-thiazine. The specific data as well as the method of preparation are given.
There is 1 Slavic reference.

ASSOCIATION: Kiev State University (Kiyevskiy gosudarstvennyy universitet).

SUBMITTED: January 28, 1957.

AVAILABLE: Library of Congress.

Card 2/2

AUTHOR: Mushkalo, L. K.

19-28 1-4/6

TITLE: The Condensation of o-Aminothiophenole With β Haloidketones (Kondensatsiya o-aminotiofenolov s β galoidketonami) III The Synthesis of the Quaternary Salts Within the Series of Dihydrobenzo-Hepta-1,5-Thiazine (Sintez chetvertichnykh soley v ryadu digidrobenezogepa-1,5-tiazina III)

PERIODICAL: Zhurnal Obshchey Khimii 1958 Vol. 28 Nr 3 pp. 742-745 (USSR)

ABSTRACT: The quaternary salts within the series of the dihydrobenzohepta-1,5-thiazine are in general obtained by alkylation of the corresponding bases as well as by the action of mineral acids on the derivatives of the 5-alkyl and 5-phenyldihydrobenzohepta-1,5-thiazine (Ref. L). the yields computed on the basis of aminothiols being not greater than 50%. A new synthesis of the quaternary salts of four-membered heterocyclic compounds by means of the condensation of the N-alkyl- and N-phenyl-o-aminothiophenole with

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The Condensation of o-Aminothiophenole With β -Haloidketones. III. The Synthesis of the Quaternary Salts Within the Series of Dihydrobenzo Hepta-1,5-Thiazine 79-28 3-41/61

β -haloidketones is suggested here which is just a special case of the synthesis of quaternary salts of heterocyclic compounds. As was shown already (Ref. 2) in the condensation of N-alkyl- and N-phenyl o-aminothiophenole as well as of N-substituted o-aminophenoles with haloidanhydrides of fatty acids quaternary salts of the benzthiazol are formed (correspondingly of benzoxazol). When however consequently the haloid is removed from the carbonyl group in the haloidcarbonyl component the quaternary salts of the six- and seven membered heterocyclic compounds are obtained (see reaction scheme 1). The quaternary salts are obtained with good yields according to this method so that it can be generally suggested for the synthesis of these salts. According to this method 4 new not yet described quaternary salts within the series of the dihydrobenzhepta-1,5-thiazine were synthesized. There are 3 references all of which are Soviet.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet (Kiyev State University)
SUBMITTED: January 3: 1961

Card 2/2

5 (3)

AUTHOR:

Mushkalo, L. K.

SOV/79-29-3-59/61

TITLE:

Cyanine Dyes From 7-Membered Heterocyclic Systems (Tsianinovyye krasiteli iz semizvennykh geterotsiklicheskikh sistem)
I. Styryls in the Series of the Dihydrobenzohepta-1,5-thiazine (I. Stirily v ryadu digidrobenezogepta-1,5-tiazina)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 3, pp 1030-1034 (USSR)

ABSTRACT:

Following previous papers (Refs 1,2) the author describes in the present paper the syntheses of the n-dimethyl-amino-styryls from 7-membered heterocyclic systems of the general formula (I) and some of their optical properties. The styryls are produced from the quaternary salts of the derivatives of the dihydrobenzohepta-1,5-thiazine very easily. For this purpose already the heating of the equimolecular quantities of quaternary salts with n-dimethyl-amino-benzaldehyde in the medium of the acetic acid anhydride on the water bath during several minutes is sufficient (Scheme 1). The properties of the styryls (I) are given in a table. They show that the substitution of the hydrogen atoms in the position 2 by the methylene radicals does not influence the color of the styryls. The substitution of the alkyl groups in the position 5 by phenyl shifts the absorption maximum in the long wave band to 20-25 mμ. The sut-

Card 1/2

Cyanine Dyes From 7-Membered Heterocyclic Systems. I. Styryls in the Series
of the Dihydrobenzohepta-1,5-thiazine

SOV/79-29-3-59/61

stitution of the sulphur atom in the 7-membered ring by the NH-group does not influence the color of the styryls (Ref 3). Alkali solution decolorizes the alcoholic solution of the styryls. The bases thus produced have apparently the structure (II). In the case of an acidification with mineral acids the initial dyes are produced (Scheme 2). The absorption maxima of the alcoholic solutions of the free bases 6-8, of the general formula (II) are given in the last column of the table. In the case of the condensation of the bromophenylate of the 2,2,4-trimethyl-dihydrobenzohepta-1,5-thiazine with n-oxybenzaldehyde the oxystyryl (III) (Scheme 3) is obtained which is transformed by ammonia into the anhydrobase of styryl (IV). There are 1 table and 3 Soviet references.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet (Kiyev State University)

SUBMITTED: January 20, 1958

Card 2/2

5 (3)
 AUTHOR: Mushkalo, L. K. SOV/79-29-3-60/61
 TITLE: Cyanine Dyes From 7-membered Heterocyclic Systems (Tsianinovyye krasiteli iz semizvennykh geterotsiklicheskikh sistem). II. Synthesis of the Styryl Bases and Their Analogues in the Series of the Dihydrobenzohepta-1,5-thiazine (II. Sintez osnovaniy stirilov i ikh analogov v ryadu digidrobenezoghepta-1,5-tiazina)
 PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 3, pp 1034-1042 (USSR)
 ABSTRACT: The styryl dyes synthesized in the previous paper (Ref 1) can be obtained immediately from the corresponding oxygen halide salts of the 7-membered heterocyclic bases and n-dimethyl-amino-benzaldehyde in the medium of the acetic acid anhydride. This second method has the advantage that salts may be easily precipitated from the reaction mass (Scheme 2). The characteristic cyanine dyes thus obtained have hydrogen atoms at the nitrogen ring atoms of the 7-membered cycle instead of hydrocarbon atoms and are therefore easily transformed into the styryl bases by ammonia. The latter yield with acids the dyes. In the case of the condensation of the o-aminethiophenol with 2¹-chloro-2-methylbutene-1-cr-3 the compound (III) was obtained

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SOV/79-29-2-60/6

Cyanine Dyes From 7-membered Heterocyclic Systems. II. Synthesis of the Styryl Bases and Their Analogues in the Series of the Dihydrobenzohepta-1,5-thiazine

which forms the dye (IV) with *n*-dimethyl-amino-benzaldehyde (Scheme 3). Its color and absorption maximum are given for a comparison in table 1. The data concerning the influence of some substituents on the color of the *n*-dimethyl-amino-styryls as well as melting points and yields are given in table 1 as well. The substitution of the alkyls by hydrogen atoms at the nitrogen atoms of the 7-membered cycles does not change the colors as is shown by table 1 and by previously published data (Ref 2). The introduction of the nitrogroup into the position 8 deepens the color and shifts the absorption maximum of the base as well as of the salt (35-38 mμ). The condensation of the 2,2,4-trimethyl-dihydrobenzohepta-1,5-thiazine and its salt with benzaldehyde, its nitro- and oxy derivatives as well as with furfural and α-pyrrole aldehyde (Table 2) proceeds equally. Thus the data given in the two tables show that the deepening of the color is observed in the case of the salt formation as well as in the case of the non-substituted styryls, and in the case of the nitro-oxy- and dimethyl-amino derivatives as well. The shift of the absorption maximum in the long

Card 2/3

SOV/79-29-3-60/61
Cyanine Dyes From 7-membered Heterocyclic Systems. II. Synthesis of the
Styryl Bases and Their Analogues in the Series of the Dihydrobenzothia-
1,5-thiazine

wave band of the spectrum differs in the case of salt formation.
There are 2 tables and 3 Soviet references.

ASSOCIATION: Kiyevskiy gosudarstvennyy universitet (Kiev State University)

SUBMITTED: January 31, 1958

Card 3/3

5.3610

78303

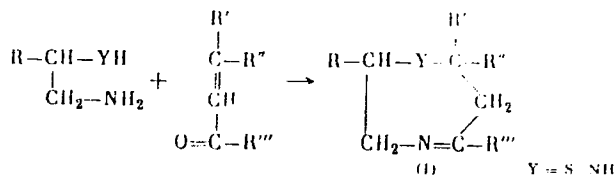
SOV/79-30-3-57/69

AUTHORS: Mushkalo, L. K., Shokol, Z. I.

TITLE: Condensation of Unsaturated Carbonyl Compounds and β -Haloketones With β -Aminoethylmercaptan and Ethylenediamine Derivatives. II

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3, pp 1023-1028 (USSR)

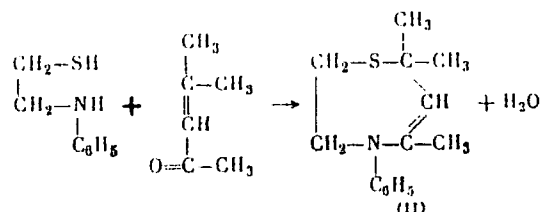
ABSTRACT: New seven-membered heterocyclic bases were synthesized by the condensation of 1,2-aminothiols and 1,2-diamines with α, β -unsaturated ketones.



Card 1/4

Condensation of Unsaturated Carbonyl
Compounds and β -Haloketones With
 β -Aminoethylmercaptan and Ethylenediamine
Derivatives. II

10503
SOV/79-30-3-57/69



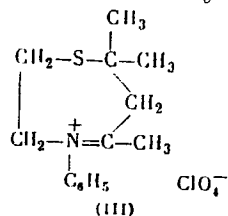
The following new compounds were obtained: 2,5,7,7-tetra-
methyltetrahydrohepta-1,4-thiazine, obtained (41%) by
condensation of 2-mercaptopropylamine with mesityl oxide
on heating the reaction mixture on a water bath for 10-12
hr, d_4^{20} 0.9837, n_D^{20} 1.4970; 7-methyl-5,7-diethyltetrahy-
drohepta-1,4-thiazine, obtained (83%) by condensation of
 β -aminoethylmercaptan with 3-methylhepten-3-one-5, on
heating the reaction mixture in a sealed tube on a boiling
water bath, bp 89-90° (3 mm), d_4^{18} 0.9870, n_D^{18} 1.5008;

Card 2/4

Condensation of Unsaturated Carbonyl
Compounds and β -Haloketones With
 β -Aminoethylmercaptan and Ethylenediamine
Derivatives. II

78303
COV/11-10-5-17/5

5,7,7-trimethyl-4-phenyltetrahydrohepta-1,4-thiazine,
obtained (91%) by condensation of β -phenylaminoethyl-
mercaptan with methyl oxide, d_4^{15} 1.0720, n_D^{15} 1.5601;
it is unstable and decomposes on distilling under
vacuum. It was purified by conversion into the per-
chlorate:



The base was obtained by treatment with aqueous KOH.
7-Methyl-5,7-diethyltetrahydrohepta-1,4-diazine was
obtained (60%) by condensation of ethylenediamine
with 3-methylhepten-3-one-5, bp 93-95° (5 mm),

Card 3/4

Condensation of Unsaturated Carbonyl
Compounds and β -Haloketones With
 β -Aminoethylmercaptan and Ethylenediamine
Derivatives. II

78303
SOV/79-30-3-57/69

d_4^{20} 0.9298, n_D^{20} 1.4850. There are 3 references, 2
German, 1 Soviet.

ASSOCIATION: Kiev State University (Kiyevskiy gosudarstvennyy
universitet)

SUBMITTED: January 19, 1959

Card 4/4

MUSHKALO, L.K.; SHOKOL, Z.I.

Cyanine dyes from seven-link heterocyclic systems. Part 3:
Merocyanines and thiocyanines in the series of tetrahydrohepta-
1,4-thiazine and tetrahydrohepta-1,4-diazine. Ukr.khim.zhur.
27 no.3:372-379 '61. (MIRA 14:11)

1. Kiyevskiy gosudarstvennyy universitet imeni T.G.Shevchenko,
kafedra organicheskoy khimii.
(Merocyanines)
(Cyanines)

MUSHKALO, L.K.; SHOKO., Z.I.

Hydrogen bond and solvatochromism of some cyanine dyes. Zhur.ob.khim.
31 no.9:3069-3076 S '61. (MIRA 14:9)

1. Kiyevskiy gosudarstvennyy universitet.
(Dyes and dyeing) (Cyanines)

MUSHKALO, L.K.; KOZLOVA, N.Ya.

Condensation of unsaturated carboxylic acids with N-alkyl-
and N-phenyl-o-aminophenylthiols. Ukr.khim.zhur. 28
no.8:960-962 '62. (MIRA 15:11)

1. Kiyevskiy gosudarstvennyy universitet im. T.G. Shevchenko.
(Acids, Organic)
(Unsaturated compounds)
(Thiols)

MUSHKALO, L. K.; SHEYKO, D. I.

Condensation of o-aminoselenophenol with unsaturated ketones.
Part 1. Zhur. ob. khim. 33 no.1:157-160 '63.
(MIRA 16:1)

1. Kiyevskiy gosudarstvennyy universitet.

(Phenol) (Selenium organic compounds)
(Ketones)

MUSHKALO, L.K.; MIKHAYLYUCHENKO, N.K.

Cyanine dyes from seven-link heterocyclic systems. Part 4:
Dyes in the naphthothiazepine series. Ukr.khim.zhur. 30 no.2:
202-206 '64. (MIRA 17:4)

1. Kiyevskiy gosudarstvennyy universitet imeni T.G.Shevchenko.

MUSHKALO, L.K.; SHEYKO, D.I.; LAD VAYA, Ye.I.

Condensation of o-aminobenzophenol with unsaturated ketones.

Report No. 2. Ukr.khim.zhur. 30 no.5:502-503 '64.

(MIRA 18:4)

1. Kiyevskiy gosudarstvennyy universitet.

MUSHKALOV, L.K.; MIKHAYLOVICH, N.F.

Norcyanines in the series of dihydrotenzo-1,4-thiazine. *Zh.*
khim. zhur. 50 no.6:608-611 '64. (MIRA 18:6)

1. Kiyevskiy gosudarstvennyy universitet imeni Shevchenko.

MUSHKALO, L.K.; SHEYKO, D.I.

Condensation of o-aminoselenophenol with unsaturated carboxylic acids. Ukr. khim. zhur. 30 no.4:384-387 '64. (MIRA 17:6)

1. Kiyevskiy gosudarstvennyy universitet imeni Shevchenko.

L 41806-65

ACCESSION NR: AP5009036

S/0296/64/000/006/0078/0080

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B

AUTHOR: Mushkambarova, M. G.

TITLE: Intermediate hosts of *Physocephalus sexalatus* in Tedzhen Oasis, Turkmen SSR

SOURCE: AN TurmSSR. Izvestiya. Seriya biologicheskikh nauk, no. 6, 1964, 78-80

TOPIC TAGS: parasitology, helminthology, veterinary medicine, nematode

ABSTRACT: In the Tedzhen Oasis, Turkmenistan, the principal definitive host of *Physocephalus sexalatus* (etiologic agent of the common disease of swine, physocephalosis) is the camel. *Scarabaeus sacer* L. is an obligate intermediate host. The beetles *Gymnopleurus aciculatus* Gebl., *G. mopsus* Pall. and *G. coriarius* Hbst., *Chironitis hungaricus pamphilus* Men., *Onitis humerosus* Pall., and *Onthophagus* sp. are intermediate facultative hosts of the parasite. The author was the first to record the species *G. aciculatus*, *G. coriarius*, *O. humerosus*, and *Ch. hungaricus pamphilus* as the intermediate hosts of *Ph. sexalatus*. Orig. art. has: 2 tables.

ASSOCIATION: Institut zoologii i parazitologii AN Turkmenskoy SSR (Institute of Zoology and Parasitology, Turkmen Academy of Sciences)

Card 1/2

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Card 2/2

MUSHKARDEN, E.M.; SHEVTSOV, G.A.

Device for measuring the complex magnetic permeability
of ferrates in a radio frequency range. Trudy inst. Kom.stand.
mer i izm. prib no.64:223-227 '62. (MIRA 16:5)
(Ferrates--Magnetic properties)
(Magnetic measurements--Equipment and supplies)

NARODITSKIY, A.D.; GARIFULLIN, A.G.; CHERNOMORCHENKO, S.G.; MUSHKAREV, V.G.;
KHASHBAKTIYEVA, D.A.

Thermal conditions of the first grid of a receiving amplifier tube
of medium power. Nauch. trudy TashGu no.221.Fiz. nauki no.21:
149-154 '63. (MIRA 17:4)

MUSHKATBLAT S.M.

GONCHAROVA, V.I., BELOVA, Z.N., BUDNITSKAYA, P.Z., MUSHKATBLAT, S.M.,
PYATYKHINA, D.P.

Production of vitamin B₁₂ from propionibacteria [with summary
in English]. Mikrobiologiya 27 no.2:226-228 Mr-Apr '58 (MIRA 11:5)

1. Institut epidemiologii i mikrobiologii im. Gamaleya AMN SSSR.
(VITAMIN B 12

optimum medium for production from propionibacteria (Rus))
(PROPIONIBACTERIUM, culture

optimum medium for cultivation in production of vitamin
B 12 (Rus))

MUSHKATIN B.I.

MOCHILIN, A. and MUSHKATIN, E.I.

ZA sotsialisticheskuiu rekonstruktsiiu Moskovskogo zheleznodorochnogo uzla.
[For socialist reconstruction of Moscow railway junction]. (Rekonstruktsiia
transporta, 1932, no.23-24, p.3-6).

DLC: ME7.R4

SO: Soviet Transportation and communications. A Bibliography, Library of Congress
Reference Department, Washington, 1952, Unclassified.

MUSHKATIN, B.I.

Mushkatin, B. "Broader conditions of an experiment with railroad sleeping cars,"
Zh.-d. transport, 1948, No. 12, pp. 72-74

SO: U-3264, 10 April 53 (Letopis 'Zhurnal 'nykh Statey, No. 4, 1949).

MUSHKATIN, B.I., kandidat tekhnicheskikh nauk.

Track laid on a reinforced concrete roadbed. Put' i put. khoz. no.2:
10-12 F '57. (MIRA 10:4)

(Railroad--Track)

MUSHKATIN, M I

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PHASE I BOOK EXPLOITATION

SOV/5473

Gornoye delo; entsiklopedicheskiy spravochnik. t. 8: Statsionarnoye elektromekhanicheskoye oborudovaniye. Elektrosnabzheniye shakht (Mining Industry; an Encyclopedic Handbook. v. 8: Stationary Electromechanical Equipment. Electric Power Supply to Mines) Moscow, Gosgortekhnizdat, 1960. 784 p. Errata slip inserted. 18,500 copies printed.

Chief Ed.: A. M. Terpigorev (Deceased); Members of the Editorial Board: A. I. Baranov, F. A. Barabanov (Deceased), A. A. Boyko, V. K. Buchnev, A. N. Zaytsev; Deputy Chief Eds.: I. K. Kit and N. V. Mel'nikov; I. N. Plaksin, N. M. Pokrovskiy, A. A. Skochinskiy (Deceased), A. O. Spivakovskiy, I. K. Stanchenko, A. P. Sudoplatov, A. V. Topchiyev, S. V. Troyanskiy, A. K. Kharchenko, L. D. Shevyakov and M. A. Shchedrin; Editorial Board for this volume: Resp. Ed.: F. A. Barabanov; Deputy Resp. Ed.: Z. M. Melamed; N. A. Arzamasov, G. M. Yelanchik, V. K. Yefremov, B. I. Zasadych, I. M. Zhumakhov, N. A. Letov, P. P. Nesterov, I. A. Rabinovich, K. I. Skorkin, and V. A. Sumchenko; Authors: G. A.

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Mining Industry (Cont.)

SOV/5473

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Mining Industry (Cont.)

SOV/5473

Candidate of Technical Sciences, N. S. Karpyshev, Candidate of Technical Sciences, N. A. Letov, Candidate of Technical Sciences, Z. M. Melamed, Candidate of Technical Sciences, Yu. A. Mikhayev, Engineer, V. P. Morozov, Engineer, V. I. Polkovskiy, Professor, Doctor of Technical Sciences, I. A. Rabinovich, Engineer, M. S. Rabinovich, Candidate of Technical Sciences, I. A. Raskin, Engineer, V. S. Tulin, Engineer, S. Ye. Unigovskiy, Engineer, K. A. Ushakov, Honored Scientist and Technologist, Professor, Doctor of Technical Sciences, M. M. Shemakhanov, Candidate of Technical Sciences, P. F. Shishkov, Candidate of Technical Sciences, and V. B. Yablonovskiy, Engineer; Eds. of Publishing House: N. A. Arzamasov and T. I. Rybal'nik; Tech. Ed.: V. L. Prozorovskaya and M. A. Kondrat'yeva.

PURPOSE: This handbook is intended for mining and mechanical engineers as well as for other skilled personnel of the mining industry concerned with the handling and operation of various installations and equipment used in mines.

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SOV/5473

Mining Industry (Cont.)

COVERAGE: Volume VIII of the mining handbook contains detailed information on mine hoisting installations, machines and equipment, mine ventilation units, duct systems, dewatering facilities, various types of pumps, pump meters, pumping stations, and the automatic remote control of these units. The handbook also describes and explains the operation of the air compression units and compressors. Heat-generating and heat-supply equipment of mines is described, as are the electric power supply systems and other electrical equipment such as transformers, power distribution systems, and grounding devices. Telephone communication and signaling systems used in mines are also treated. No personalities are mentioned. Each part of the handbook is accompanied by references, mostly Soviet.

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| Ch. XIII. Saving on Electric Power and the Increase of the Power Factor (Melamed, B. M.) | 735 |
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MUSHKATIN, V.S.

Delivery of a giant fetus. Akush.i gin. 35 no.5:105 S-0 '59.

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1. Iz Mjmskoy rayonnoy bol'nitsy Yakutskoy ASSR (glavnyy vrach
R.A. Kovaleva).

(LABOR, COMPLICATED)

LEBEDEV, Sergey Pavlovich, doktor tekhn.nauk, prof.; MUSHKATINA,
Bella Borisovna, inzh.; OGRODNIKOV, Ivan Nikolayevich, inzh.;
CHEREpanov, Boris Yermeyevich, inzh.

Modeling of the electrical transmission system of the T-250
tractor. Izv. vys.shech.zav., elektromekh. 7 no. 3:332-338
1964. (MIRA 17:5)

1. Zaveduyushchiy kafedroy elektrotekhniki Chelyabinskogo
instituta mekhanizatsii i elektrifikatsii sel'skogo khozyaystva
(for Lebedev). 2. Kafedra elektrotekhniki Chelyabinskogo
instituta mekhanizatsii i elektrifikatsii sel'skogo khozyaystva
(for Mushkatina, Ogorodnikov, Cherepanov).

MUSHKET, Leonid Pavlovich; GORYACHEV, P.P., doktor biolog.nauk,
nauchnyy red.; YAMPOL'SKAYA, I.G., red.; KOLBICHEV, V.I.,
tekhn.red.

[Utilization of aquatic plants in agriculture] Ispol'zovanie
vodnoi rastitel'nosti v sel'skom khoziaistve. Cheliabinsk.
Cheliabinskoe knizhnoe izd-vo, 1960. 13 p.

(MIRA 14:4)

(Aquatic plants)

MUSHKETIK, L. M.

MUSHKETIK, L. M. --"Reproductive Capacity of the Common Pine at the Plantings of Boyarsk Teaching and Experimental Forestry Farm as a Base for the Establishment of Tree-Seed Production." (Dissertations For Degrees In Science and Engineering Defended at USSR Higher Educational Institutions) (29) Ukrainian Order of Labor Red Banner Agricultural Academy, Chair of Forestry, Kiev, 1955

SO: Knizhnaya Letopis' No 29, 16 July 1955

* For the Degree of Candidate in Agricultural Sciences

MUSHKETIK, L.M.

Sexual dimorphism in the common pine. *Biul.Glav.bot.sada* no.37:
112-115 '60. (MIRA 13:11)

1. Ukrainskaya Akademiya sel'skokhozyaystvennykh nauk, Kiyev.
(Pine) (Dimorphism (Plants))